

CLAIMS

- 1 An antimicrobial protein having substantially  
5 the amino acid sequence shown in Figures 27 to  
29 or in Figure 32.
- 2 A protein as claimed in claim 1 which is an  
10 oligomer and which comprises at least one  
polypeptide having substantially the amino  
acid sequence shown in Figures 27 to 29 or  
in Figure 32.
- 3 A protein as claimed in claim 1 or claim 2  
15 which is capable of being isolated from a  
plant seed.
- 4 A protein as claimed in claim 3 which is  
20 capable of being isolated from a seed of the  
family Brassicaceae or of the family  
Compositae or of the family Leguminosae.
- 5 A protein as claimed in claim 4 which is  
25 isolated from Raphanus, Brassica, Sinapis,  
Arabidopsis, Dahlia, Cnicus, Lathyrus or  
Clitoria.
- 6 A pure protein Rs-AFP1, capable of being  
30 isolated from Raphanus seed.
- 7 A pure protein Rs-AFP2, capable of being  
isolated from Raphanus seed.

- 8 A pure protein Rs-nsLTP, capable of being isolated from Raphanus seed.
- 5 9 Pure proteins Bn-AFP1, Bn-AFP2, Br-AFP1 and Br-AFP2, capable of being isolated from Brassica seed.
- 10 10 Pure proteins Sa-AFP1 and Sa-AFP2, capable of being isolated from Sinapis seed.
- 11 11 A pure protein At-AFP1, capable of being isolated from Arabidopsis seed.
- 15 12 A pure protein Dm-AMP1, capable of being isolated from Dahlia seed.
- 13 13 A pure protein Dm-AMP2, capable of being isolated from Dahlia seed.
- 20 14 A pure protein Cb-AMP1, capable of being isolated from Cnicus seed.
- 15 15 A pure protein Cb-AMP2, capable of being isolated from Cnicus seed.
- 25 16 A pure protein Lc-AFP, capable of being isolated from Lathyrus seed.
- 30 17 A pure protein Ct-AMP1, capable of being isolated from Clitoria seed.
- 18 18 A pure protein Ct-AMP2, capable of being isolated from Clitoria seed.

- 19 A protein as claimed in any of claims 1 to 18  
which is synthetic.
- 5 20 A recombinant DNA sequence encoding a protein  
as claimed in any of claims 1-19.
- 21 A DNA sequence as claimed in claim 20 which is  
a cDNA.
- 10 22 A DNA sequence as claimed in claim 20 which is  
genomic DNA.
- 15 23 A DNA sequence as claimed in claim 22 which is  
isolated from a plant genome.
- 24 A DNA sequence as claimed in claim 23 which  
includes a promoter sequence.
- 20 25 A promoter sequence obtainable from a gene  
encoding a protein as claimed in any of claims  
1-19.
- 25 26 A vector containing a DNA sequence as claimed  
in claim 20.
- 27 A biological system including recombinant DNA  
as claimed in claim 20 such that the encoded  
protein is expressed.
- 30 28 A biological system as claimed in claim 27  
which is a micro-organism.
- 29 A biological system as claimed in claim 27  
which is a plant.

- 30 An antimicrobial protein produced by  
expression of recombinant DNA as claimed in  
claim 20.
- 5 31 A plant transformed with recombinant DNA as  
claimed in claim 20.
- 10 32 A plant as claimed in claim 26 in which the  
recombinant DNA encodes at least one of the  
following proteins: Rs-AFP1, Rs-AFP2,  
Rs-nsLTP, Bn-AFP1, Bn-AFP2, Br-AFP1, Br-AFP2,  
Sa-AFP1, Sa-AFP2, At-AFP1, Dm-AMP1, Dm-AMP2,  
Cb-AMP1, Cb-AMP2, Lc-AFP, Ct-AMP1, Ct-AMP2.
- 15 33 Seeds and progeny of a plant as claimed in  
claim 31 or claim 32.
- 20 34 A composition containing at least one of the  
proteins as claimed in any of claims 1 to 19  
or claim 30.
- 25 35 A process of combating fungi or bacteria which  
comprises exposure to a protein or composition  
as claimed in any of claims 1 to 19, claim 30  
or claim 34.
- 30 36 A process of combating fungi or bacteria which  
comprises exposure to a protein encoded by pea  
gene pI39, by pea gene pI230, by cowpea gene  
pSAS10, or by potato gene pI322.
- 37 37 A process of combating fungi or bacteria which  
comprises exposure to SI $\alpha$ 2,  $\gamma$ -1-purothionin,  
or another  $\alpha$ -amylase inhibitor protein.

38 An extraction process for producing a protein  
as claimed in any of claims 1 to 19 or claim  
30 from organic material containing them which  
comprises submitting the organic material to  
maceration and solvent extraction.

39 An extraction process as claimed in claim 38  
where the protein is subsequently purified by  
centrifugation, chromatography and dialysis.

40 An extraction process as claimed in either  
claim 38 or claim 39 where the organic matter  
comprises seeds of Raphanus, Brassica,  
Sinapis, Arabidopsis, Dahlia, Cnicus, Lathyrus  
or Clitoria.

41 An extraction process as claimed in either  
claim 38 or claim 39 where the organic matter  
comprises a biological system as claimed in  
claim 27.

42 A process for producing a protein as claimed  
in any of claims 1 to 19 which comprises  
chemical synthesis of the protein.

43 A process for producing a protein as claimed  
in any of claims 1 to 19 which comprises  
expression of a recombinant DNA sequence  
encoding the protein.